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PK-12 Virtual Schools: The Challenges and Roles of School Leaders

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Introduction

According to Jacobsen, Clifford and Friesen (2002), the expansion of instructional technology is due in part to an increase in demand by local communities to make sure that local schools are effectively preparing students for the technological challenges of the 21st century. In addition, Means, Toyama, Murphy, Bakia and Jones (2009) cite that "online learning– for students and for teachers– is one of the fastest growing trends in educational uses of technology" (p. xi). In support of this claim, Robyler (2006) reports, "...many people may still not be aware that *virtual schooling* is one of the fastest-growing areas in K-12 education. In its 2005 report, the National Center for Education Statistics found that, as of 2003, 36% of U.S. school districts had students participating in *virtual* courses for a total of more than 300,000 students.(fn. 3) And this number is projected to explode in the coming decade" (p. 1).

The claims of expansion of instructional technology are documented by the International Association for K-12 Online Learning (INACOL). They state that "44 states have significant supplemental online learning programs, or significant full-time programs (in which students take most or all of their courses online), or both... and the majority of existing online programs show considerable growth in the number of students they are serving" (2009, p. 1).

In terms of the benefits of successful virtual networks, Berry, Norton and Byrd (2007) share that, "virtual networks are especially powerful because they enable some of the best teaching minds in a state, region, or nation to bond together into powerful professional learning communities" (p. 49). Also, Blomeyer (2002) cited a recent report of the National Association of State Boards of Education claiming that, "E-learning will improve American education in valuable ways and should be universally implemented as soon as possible" (p. 1).

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In a recent article in *Education Week* entitled, "School Sees Better Days in the Future" – the author describes the technology realities at Philadelphia's School of the Future, a partnership between the local school district and Microsoft Corporation, as follows:

> "The [Technology] Reality: Internet access in the first year was unreliable, making the online curriculum unusable and leaving some teachers with insufficient guidance for their courses. Many students and teachers were not adept at using the new tools, requiring additional training that took away from instruction. Lack of structure led to discipline problems.
>
> "The [Leadership] Reality: The principal resigned after the first year for personal reasons, and the school has had a series of leaders since then, most with a different approach to curriculum and instruction. With Mr. Vallas' departure in 2006, the school lost its high-level champion in the district's central office" (Manzo, 2009, p. 20).

The author goes on to explain that what most believed to be an extraordinary opportunity – 'a winning formula' at the time (Borja, 2006). Over the past three years, this modern high school has not changed to meet the needs of the 21st century, it is "fundamentally no different from a typical high school" (Manzo, 2009, p. 18) except for a modern building.

This, according to Melnick (2002), is precisely the problem with much of the current work in virtual schools. His assertion is that virtual schooling needs a new model. The question he poses is, "...how can this potential [of virtual schools] be realized in the face of present education structures which hearken back to the Industrial Age?" (p. 85). He claims that all of the proposed benefits of virtual schools are for naught unless "new ways of thinking about design, layout, content and user interaction" (p. 86) are recognized and implemented. He pronounces that we must 'rethink our beliefs around 'education' in the context of the knowledge age. He emphasizes that virtual schools require a different model of education–one that is student or community-driven, where the teacher becomes an active, expert participant, rather than simply a conveyor of knowledge or a facilitator (p. 86). He provides a listing of some of the rethinking that needs to occur if virtual schools are to reach their potential. Among the areas to be considered are: the schedule, the technology itself, teacher instructional behaviors and technology skills, and curriculum. For example, because virtual schools are open seven days a week, twenty-four hours a day, this completely alters the work patterns of teachers and students–there is no defined work day and all interactions, whether meaningful discourse, informal discussion, or remediation must take place and be supported by technology. If the technology fails, so does the learning.

While it is beyond the scope of this paper to proffer a new model for the reordering and restructuring of U.S. public schools, it is possible to share the literature that is beginning to appear regarding some of the new thinking and behaviors necessary to begin this larger, deeper change. Additionally, some documentation of both failed and successful efforts in creating and sustaining virtual schooling at the PK-12 level has been synthesized to offer a status of the current thinking in this area. Specifically an exploration of technological trends documented by organizations and researchers (what has worked, what hasn't) in efforts thus far to create and sustain virtual

schools at the PK-12 levels is presented. Additionally, the importance of leadership support is reviewed—in particular, the role of the principal and superintendent and how they influence the sustainability of online learning and the change process.

Based on this literature, a focus on the challenges administrators face and the roles they should assume when implementing and sustaining online technology for instruction are developed. These challenges include the principal's leadership role, the need for new kinds and content of professional development, and what appear to be emerging best practices for those interested in creating and sustaining the new teaching and learning environment.

Technology: The 'Virtual' is Reality

"Our children today are being socialized in a way that is vastly different from their parents" (Prensky, 2001b, p.1). For example: Over 10,000 hours playing videogames, over 200,000 e-mails and instant messages sent and received; over 10,000 hours talking on digital cell phones; over 20,000 hours watching TV (a high percentage fast speed MTV), over 500,000 commercials seen—all before the kids leave college (Prensky, 2001b, p. 1)

Certainly from the perspective of today's PK-12 students, technology isn't the future, it is the 'now'. According to Marc Prensky (2001a), "...today's students *think and process information fundamentally differently* from their predecessors." They are 'digital natives,' born into the digital age, while adults are 'digital immigrants,' adapting their skills and thinking processes to a new world. These digital natives have fundamentally different expectations of access and interactions with technology (cited in Project Tomorrow 2007, p. 2). Support for this comes from research conducted by Valentine and Holloway (2002). They studied children 6-11 years old "to demonstrate how on-line spaces are used, encountered, and interpreted within the context of young people's off-line everyday lives" (p. 302). They found that the children did not view and operate as if their on-line and off-line worlds were oppositional or unconnected "but rather are mutually constituted. One cannot be understood without the other. Children's use of Information and Communication Technologies (ICTs) is embedded in their lives. Their on-line identities, relationships, and spaces are no less 'real' than those encountered off-line" (p. 316).

In 1999, the U.S. Department of Education (1999) reported rates of computer and Internet use by children and adolescents had increased rapidly. In 1984, data from the Current Population Survey indicated that 27% of students (from pre- kindergarten through college) used computers at school. By 1989 this number had increased to 43%; by 1997 it was 69%. Internet use by children and adolescents of elementary and high school age has also increased rapidly, growing from about one-third of 9-17-year-olds in 1997 to about two-thirds in 2001 (U.S. Department of Commerce, 2002). In the more recent 2001 report (DeBell & Chapman, 2003) about 90% of children and adolescents age 5-17 (47 million persons) use computers and about 59% (31 million persons) use the Internet. The report also found that computer and Internet use by children and adolescents is widespread and begins at an early age. About three-fourths of children already use computers by the age of five, and a majority use the Internet by the age of nine. Among high-school-age youth (ages 15–17), more than 90% use computers and at least three-fourths use the Internet.

In 2002, Valentine and Holloway, stated, "Statistics suggest that over 40% of U.S. households now own a home personal computer (PC)..." (p. 303). More recently, in Fall 2007, 70% of students (grades 6-12) responding to Project Tomorrow's 2007 Speak Up survey defined their technology skills as average or about the same as their peers, 23% believed they are more expert than their peers, and 5% considered themselves beginning. Project Tomorrow's 2007 Speak Up surveyed 319,223 K-12 students, 25,544 teachers, 19,726 parents, and 3,263 administrators from 3,729 schools and 867 districts with 97% from public institutions and 3% from private schools. The schools involved were from all 50 United States, the District of Columbia, American Department of Defense Schools, Canada, Mexico, and Australia. The demographics of those involved included locales that were 32% urban, 40% suburban, and 29% rural; additionally, 43% percent of the schools were Title I eligible, and 29% had more than 50% minority population attending. Overall, 74% of 6th-12th grade students reported that good technology skills are important to future success, and half of the 6th-12th grade students said that their school is not doing a good job preparing them for 21st century jobs.

The Pew Internet & American Life Project (2002) found that, in addition to school-related uses of the Internet, teenagers go online for a variety of other activities, including: communicating with friends and family (via email, instant messaging, and chat rooms); entertaining themselves (doing things such as surfing the Web for fun, visiting entertainment sites, playing or downloading games, and listening to music online or downloading it); learning things largely unrelated to school (such as looking for information on hobbies, getting the news, researching a product or service before buying it, looking for health-related information, and looking for information that is embarrassing or hard to talk about); and exploring other online interactive or transaction features (such as going to a Web site where they can express opinions about something, visiting sites for trading and selling things, buying something online, creating a Web page, etc.). Indeed, as Don Tapscott (1998) foresaw in his book, *Growing Up Digital: The Rise of the Net Generation*, there is evidence that many students are more frequent users of the Internet and are more Internet savvy than their parents and teachers (pp. 8-9).

Additionally, the Pew project stressed that, "these students said over and over that their schools and teachers have not yet recognized—much less responded to—the fundamental shift occurring in the students they serve and in the learning communities they are charged with fostering. And, when teachers and schools do react, often it is in ways that make it more difficult for students who have become accustomed to using the Internet to communicate and access information" (p. 12). The project referred to this situation as the 'digital disconnect'. Pew asserted that "the primary reasons for this digital disconnect between how students use the Internet for school and how schools have them use the Internet are tied to the ways that schools and teachers are oriented towards the Internet, their inability in many instances to integrate online tools into schooling, and the real and perceived barriers students face as they seek Internet access" (p.14).

These various reports highlight the proposition that the traditional structures, content and delivery modes of schools are not in line with the needs of students, as students, and as the workforce of the future. The Pew Report (2002) submitted that, "students usually have strong views about how their school experiences could be made better. Their analysis of how the Internet can be exploited in educational settings illustrates this point perfectly. Here is what they say they would like to see happen:

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- better coordination of their out-of-school educational use of the Internet with classroom activities. They argue that this could be the key to leveraging the power of the Internet for learning.
- increase significantly the quality of access to the Internet in schools.
- professional development and technical assistance for teachers are crucial for effective integration of the Internet into curricula.
- place priority on developing programs to teach keyboarding, computer, and Internet literacy skills.
- continued effort to ensure that high-quality online information to complete school assignments be freely available, easily accessible, and age-appropriate–without undue limitation on students' freedoms.
- policy makers take the 'digital divide' seriously and that they begin to understand the more subtle inequities among teenagers that manifest themselves in differences in the quality of student Internet access and use" (pp. 23-24).

Similar issues were identified by Robyler (2006) after working with successful virtual secondary schools. Robyler identified five common strategies for success that emerged from discussions with directors of these schools. All have implications for the leadership of virtual schools. The five strategies are:

1. *Prepare students for success*. Part of the driving vision of the *virtual school* movement is the desire to ensure more equitable access to *high*-quality secondary courses for all students, especially those traditionally disadvantaged by lack of local personnel and material resources. However, not all students have the skills and dispositions required to take advantage of the relatively freewheeling, flexible formats of *virtual* classrooms. Good *virtual* programs anticipate these misconceptions. They provide checklists, self-tests, and, in many cases, no-credit orientation programs to give students a taste of what online learning will be like.
2. *Prepare teachers for success*. "...good teachers in regular *schools* don't always make the leap from face-to-face classrooms to *virtual* ones.(fn. 10) Those who operate good *virtual* programs believe that effective online teachers, mentors, and facilitators are made, not born. Each program has its own rigorous and extensive training, tailored to its own classroom platform and methods, including actually teaching part of an online course with the guidance of a mentor.
3. *Use interactive, flexible course designs*. *Virtual* programs tend to emphasize hands-on, project-based assignments that require students to work together.
4. *Monitor and support teachers*. An interesting feature in nearly every one of these programs is the combination of *high* support for teachers in their work with students, along with constant monitoring to ensure that teachers comply with program expectations and standards.
5. *Monitor and support students*. A *students first* perspective characterizes the climate of all these *virtual* schools. Each program requires that teachers interact personally with each student, and each program provides support tailored to individual student needs. It is easy to see that the amount of person-to-person contact between instructional personnel and individual students exceeds that in many face-to-face programs. Student success is the focal point of all activities, not just instruction. Flexible registration and pacing options are 'customer oriented' to meet students' schedules. Initial welcoming e-mails and intake interviews help ensure that students will have what they need to learn efficiency. (pp. 35-36).

Both the 2007 Speak Up Project and the 2002 Pew Report stated that the students themselves recognize the most effective way to address the 'digital disconnect' issue. Through the addition of a school leader survey to the Speak Up project in 2007, Project Tomorrow reported that with few exceptions, responses confirmed the digital disconnect between those who lead the schools and those intended to be served by the schools. Likewise, the Pew Report noted that, "Internet-savvy students make clear that school leaders—more so than individual teachers—set the tone for Internet use in their classes" (p.15). Interestingly, the International Society for Technology in Education (ISTE) recently released its National Educational Technology Standards (NETS) for administrators. ISTE, like the students in the 2007 Speak Up Project, believes that "administrators play a pivotal role in determining how well technology is used in schools" and furthers the concept that this role can be supported through the implementation of the following leadership standards– visionary leadership, digital age learning culture, excellence in professional practice, systemic improvement and digital citizenship (2009, p. 1).

Addressing the 'Digital Disconnect' Through Effective School Leadership

Numerous instances of research and organizational reports confirm empirically what high school students seem to know intuitively, i.e., leadership plays a critical role in technology implementation and sustainability. Davis (2009), states that, "it takes more than computers to make e-learning work" (p. 25) and that "school districts should be aware that there are many administrative tasks associated with e-education, just as there are with traditional face-to-face learning" (p. 6). Thus managing these complicated e-education administrative issues requires effective leadership at the campus and district level.

LeBaron and Collier (2001) stated that "the successful infusion of technology into education depends on effective leadership and good sense about school culture" (p. xi). Additionally, and very importantly, numerous researchers (Hallinger & Heck, 1996; Mortimore, 1993; Scheurich, 1998; Leithwood & Jantzi, 1999; Silins & Mulford, 2002; Waters, Marzano, & McNulty, 2003; Gezi, 1990; Reitzug & Patterson, 1998; and Hargreaves, Moore, Fink, Brayman, & White, 2003) have conducted studies and elaborated on studies pertaining to a very convincing collection of "empirical evidence that now demonstrates the significant effects of leadership on school conditions and students learning" (as cited in Leithwood, Aitken, & Jantzi, 2006, p. 59). An effective leader, according to Leithwood and, Reihl (2003), is responsible for not only setting the direction but also providing influence in the organization. A recent study by Brandon supports this concept by sharing that "research provides good evidence that supports quality leadership in a school district as a key to improving the motivation of teachers and the adoption of instructional technology by school leaders" (Brandon, 2008, p. 30). In addition, Perry and

Areglado (2001) further offer that, "technology-supported curricular transformation demands visionary leadership and effective management from school principals" (p. 87).

Too often, according to Ferriter (2009), school leaders "lack a fluent understanding of the tools that are redefining learning [and] can't provide high levels of instructional leadership to their faculties" (p. 90). Therefore, in order to sustain an administrator's effective leadership role in technology and to directly assist school leaders in resolving the many challenges they will face with instructional technology, schools and districts must build the leadership capacity in the school, especially for principals. According to Fullan (2005), "capacity building involves developing the collective ability– dispositions, skills, knowledge, motivation, and resources– to act together to bring about positive change" (p, 4). Thus building capacity of school leaders plays a critical role in influencing how faculty and schools introduce and integrate technology into teaching. However, the successful integration, implementation and sustainability of technology requires building capacity of both teachers and school leaders. (Lambert, 1998).

Of particular relevance to this focus on virtual schools is the perspective on capacity shared by Elmore (2002). He agrees that capacity building requires attention to knowledge and skill; but he goes on to admonish that it "is not just about getting structuring and restructuring to allow people to do what they already know how to do" (p. 40). Rather, the emphasis should be on developing the skills and knowledge for people to do things that they have not yet been able to do nor learned how to do that involves connecting people to sources of knowledge and skill outside of their own workplace. This involves connecting people within the workplace to develop knowledge and skill; and substantially increasing professional development that is focused and designed to enhance student learning. In this conversation about PK-12 virtual schools, implementation of this perspective of capacity is essential. Operating successful PK-12 virtual schools cannot operate in a 'business as usual' environment. Educators must move outside their own purview to benchmark practices in other entities operating successfully in a virtual environment (e.g., online retail, NASA, gaming industry, pilot training, medical training, etc.) and then, adopt and adapt these practices to the unique and dynamic context of children's and youths' learning and development. Because the premise behind capacity-building involves identifying instructional leadership as everyone's work (Lambert, 2002) and acknowledging that the learning and leading journey must be shared by stakeholders (Frankel & Hayot, 2001), successful practices must be implemented across a campus and district. These new knowledge, skills, and competencies help counteract what Kearsley (1988) referred to as a "lack of computer sophistication" (p. 66) and inadequate technology training (Dawson & Rakes, 2003) which leads to poor decision-making.

Best Practices: Temporary Solutions for Long-Term Success

With all that has been said before, we offer this section with caution. In the rapidly changing world of technology, it seems somewhat absurd to offer a list of actions that represent 'the answers' to creating and sustaining successful PK-12 virtual schools. The very nature of the technology environment is fluid, fast-changing and often even audacious. Thus, means for working with it and within it need to be fluid, fast-changing and perhaps, now and then, audacious as well. With that said, what follows is the best we know 'for the moment'. Realistically, what is best as we write this article may not be best by the time it appears in print. Thus we both warn and encourage that you read, consider and implement as appropriate, but more importantly that you follow the wisdom shared in the section on capacity-building. Move beyond what we know now, look for better practices inside and outside the field of education, and do not become so committed to 'the' solution that you neglect to address the changing questions and newly posed puzzles technology generates on almost a daily basis. With that caveat pronounced, we move on to sharing what we know to be best practices at this time.

Zemelman, Daniels and Hyde (2005), refer to best practice "as a shorthand emblem of serious, thoughtful, informed, responsible, state-of-the-art teaching" (p. vi). However, to truly take advantage of what best practices has to offer, which includes– "student-centered, active, experiential, authentic, democratic, collaborative, rigorous, and challenging schools" (p. vii), teachers and principals should first design professional development that links to student learning (Holloway, 2003) and that is job-embedded (Wood & Killian, 1998). Because "teachers and administrators often view teaching and learning conditions differently– quite dramatically so" (Berry, Wade and Trantham, 2009, p. 81), it is imperative that teachers and administrators work together to create and implement a 'shared and supportive leadership' environment (Hord, 1996) that encourages educators to collaboratively and collectively address the challenges as well as promote the value of virtual schools and e-learning. The consequence of creating such a leadership community consisting of principals and teachers "increases the collective power in the school in terms of new knowledge and competencies" (Fullan, 2005).

In understanding the value of virtual schools and e-learning, Blomeyer (2009) shares that there is a, "growing body of evidence that supports the conclusion that when e-learning is deployed with identical attention to the enabling details that characterize high quality face-to-face instruction, it can effectively compliment, enhance, and expand educational options available for K-12 students" (p. 1). Similarly, Robyler (2006) reported, "the evidence from research is fairly consistent on what constitutes effective, high-quality virtual courses" (p. 2). Robyler pointed out that because postsecondary programs have used online learning longer, much of the research is focused on that level. Even, she asserts that "the quality indicators are always nearly identical to those for K-12 programs" (p. 2). She notes that the Southern Regional Educational Board (SREB) depicts these findings in a framework for virtual school quality. According to Robyler, the SREB framework has criteria in four categories for judging quality. They are:

- Basic assumptions. For example, it is a basic assumption that teachers are Web-trained and that there is equitable access to necessary resources.
- Curriculum and instruction. For example, content of high-quality programs is systematically designed and clearly communicated, and activities are highly interactive and offer opportunities for critical thinking related to course objectives.
- Management. For example, high-quality programs provide technical assistance and ensure that student work is secure.
- Evaluation and assessment. For example, high-quality programs include assessment and have procedures in place for monitoring students during testing.

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As Robyler points out, "Not much new here. Most of these sound like criteria that any courses or programs should meet" (p. 2).

Numerous researchers (e.g., Cradler et al., 2002; Ciesemier, 2003; Middleton & Murray; 1999, Lou et al., 2002; Latham, 1999) report that, "using technology does have a positive impact on student learning" (as cited in Steelman, et al., 2004, p.2). According to Collier (2001), "preparing and empowering teachers and administrators to integrate technology in the classroom is an ongoing process" (p. 61). In terms of supporting administrator's staff development, Collier shares that "staff development can be supported in the following ways: (1) establishing expectations and standards for accountability; (2) adjusting priorities; (3) encouraging assessment of technology use in the classroom, in the context of overall student achievement; (4) providing incentives for exploratory application of technology, ensuring that such efforts are focused on curriculum and designed in a way that wide-scale implementation is a likely outcome; (5) developing their own awareness of technology for learning and exercising their understanding in communication with teachers and staff; and (6) advocating for critical, ongoing technical support in the form of hardware maintenance and upgrades, personnel for technical support in the classroom, system-wide infrastructure, and a working technology plan" (p. 70).

Ultimately, the role of school leaders should be one of building organizational capacity. Fullan (2001) states it best when he stresses that "individual staff development is not sufficient... the role of leadership (in this case, the principal) is to 'cause' greater capacity in the organization in order to get better results (learning)" (p. 65). Thus, part of the building capacity process would include preparing administrators to deal with conflict due to organizational changes brought about by differences in values, norms and priorities as a result of moving toward an e-learning and virtual environment. Waters, Marzano and McNulty (2003) support this belief by stating that to be an effective leader, "school leaders must become adept at leading both first and second order changes" (p.8). Consequently, leading efforts to build the organizational capacity across the campus and district requires a deep understanding between the concepts of change, initiation and implementation. According to Pankake (1998), "this relationship between initiation and implementation is important for principals to know about and understand if successful implementation of change is expected" (p. 36).

As mentioned earlier, a good sense of culture by school leaders plays a key role in successfully implementing technology and change. In other words, the process of leading in a culture of change requires an understanding that "successful strategies always involve relationships, relationships, relationships" (Fullan, 2001,p. 70). Furthermore, Bolman and Deal (2008) make the case that, "an organization's culture is built over time as members develop beliefs, values, practices, and artifacts that seem to work and are transmitted to new recruits. Defined as 'the way we do things around here', culture anchors an organization's identity and sense of itself" (pp. 277-78).

Therefore, implementation of any initiative, and in this case the effective implementation and use of technology, requires that school leaders skillfully and deliberately establish what Hord and Sommers (2008) refer to as 'supportive conditions' – that is, physical and structural factors and relational and human capacities that help in initiating and implementing an effective professional learning community. These two types of supportive conditions (Boyd, 1992) contribute to a more productive change and school improvement process. These physical and relational factors include "availability of needed resources; schedules and structures that reduce isolation; and policies that provide greater autonomy, foster collaboration, provide effective communication, and provide for staff development" ...and "help[ing] staff relate to one another" (as cited in Hord & Sommers, 2008, pp. 13–15) in order to build trust and collegiality, respectively.

Virtually Done: Some Closing Remarks

Thus, in conclusion, building and sustaining a school and district culture that has a technology 'growth mindset' (Dweck, 2006) and the implementation of processes that support a technology-specific culture in which, "the role of the leader is to ensure that the organization develops relationships that help produce desirable results" (Fullan, 2001, p. 68), would ensure that teachers and principals collaboratively and collectively acquire specific knowledge and skills that directly support the leadership roles, as well as assist in meeting the varied challenges that most school leaders face when leading e-learning and virtual campuses.

Furthermore, the key to creating buy-in for technology, especially e-learning and virtual schools, will require that university/principal preparation programs work collaboratively with local school districts and national/state technology organizations to build capacity of future administrators and teacher leaders. This is not to say that local and national organizations are not focusing on professional development, but the focus needs to include specific training that ensures that school leaders acquire very specific knowledge and skills on how to reculture their schools and districts as e-learning and or virtual campuses. In addition, professional development for school leaders that deals specifically in addressing first and second order changes is a must. Finally, the implementation and sustainability of technology across a school would not be possible without development of an open climate and culture.

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